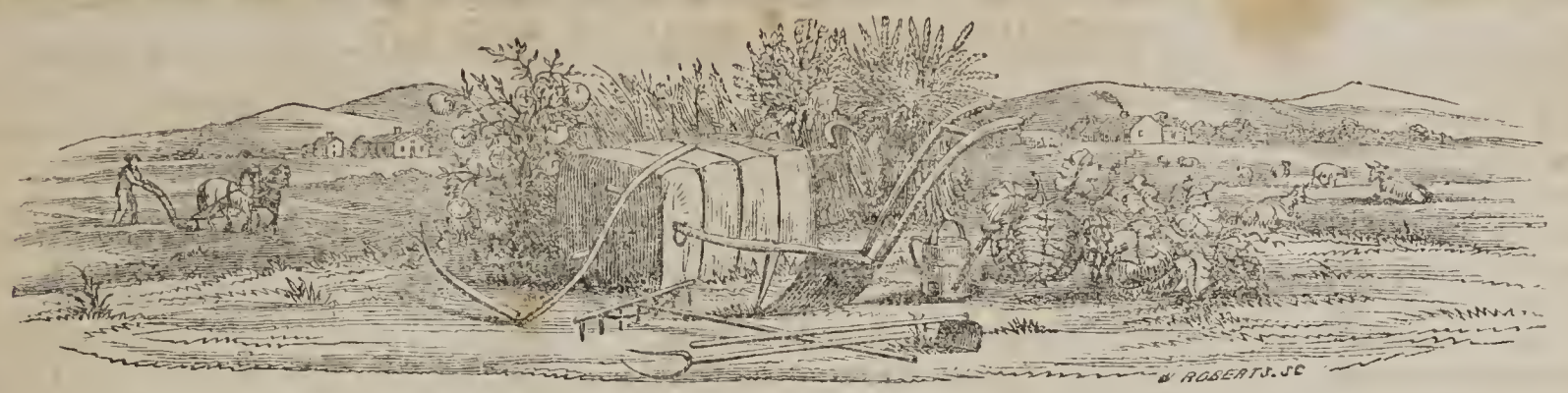

FARMER AND PLANTER.

DEVOTED TO AGRICULTURE, HORTICULTURE, MECHANICS, DOMESTIC AND RURAL ECONOMY.

VOL. IV. PENDLETON, S. C., AUGUST, 1853. No. 8.

The Farmer and Planter

Is published monthly at Pendleton, S. C.,

GEO. SEABORN & J. J. GILMAN,

Editors and Proprietors.

R. F. SIMPSON & F. BURT,

ASSISTANT EDITORS.

TERMS.

1 *copy*, one year (*invariably in advance*), $1
5 *copies* one year " " " " 5
25 *copies*, " " " " " 20
100 *copies*, " " " " " 75

All letters, except communications for the Farmer and Planter, must be POST PAID to insure attention.

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For the Farmer and Planter.

Thoughts on the Seasons, &c.

BY A PLANTER.

Three months of nearly unbroken aridity are passed—it is now first of July and a sultry, dry stillness prevails; every plant, but the ultra succulents, wears a sickly, drooping and withered appearance, as if nature was at a stand-still in the hey-day of action. The hardy carex of the old field bows to dryness—to all absorbing dryness. We write this to chronicle the fact, as the agriculturist too should have his literature by which the unborn may learn the past. The floods of last year, and the dryness of the present, puts at fault all our theories of meteoric phenomena as to the cause of rainy or dry seasons. The country is nearly in the same physical condition this year, as it was last, consequently the felling of the forest could have had nothing to do with the matter, and we think Baussingault hardly right, when he says "that the extensive destruction of the forests, lessens the quantity of running water in a country." In our observation of forty years, we can point to many springs and small branches that have made their appearance since the country has been cleared of its forests. The spring we drink from, and the running water that supplies our stock, forty years ago was only a wet-weather drain. We could notice many other facts of the same character. We give in to the principle, that, "in the laws of nature there is no exceptions." We know that effect follows cause unerringly. But we often in our explorations of nature, misunderstand, and thus misinterpret, the teachings of nature. Boussingault noticed the fact, that in all countries densely wooded, and redundant of vegetation, that rains were more frequent, and running streams more common, than in sandy plains with no trees, and but little vegetation of any kind. The poet somewhere gives a good rendering of this, when he says—

"Hence barren sands imbibe the shower,
Producing neither fruit, or flower,
Pleasant or ungrateful."

Geological formation, and physical condition have importance in vegetable life. Should it rain every day on a deep sandy plain, barrenness would still result.—Should seeds be transported by the tornado, and by the concurrence of peat and moisture should germinate, the pabulum plantanum, the life sustaining elements are wanting, and they die of necessity from want of nutrition. It would hardly be in harmony with physical nature to find brooks of running water on the surface of a sandy plain, where the sand was of a depth to swallow up ten times the quantity of rain that falls any where, even in the provinces of San Bonaventura, Choco, and Esmeraldes, where it rains every day. The water that falls on these plains, descends till stopped by an other and different formation, where it silently travels on, breaking forth in springs and rivulets at lower levels.

We reason thus: if clearing a country of its forest, is cause of drought, then drought being an effect under unerring law, the effect would continue while the cause existed. That this is not the case we have evidenced in our own country, by the alternation of wet and dry, at every time of year, and at every temperature.—One section of our State may be, and often is, wet, while another section with an equal proportion of forest land is suffering extreme drought; a few plantations may be seasonable while the surrounding ones may be burnt up—and this state continues often through the growing season. We notice where partial showers fall during the dry season, that they are often repeated. The hygrometic condition of the atmosphere, has not been sufficiently noticed by us to speak with authority, but we are disposed to the opinion that there is more water in it in an open, cleared country, than in the densely forest lands. it is upon this condition that corn depends for any moisture at the present time: it looks revived every morning from this supply, which we think must be imbibed by the leaves during darkness.

The relation of water to the atmosphere we think to be in its maximum quantity in the time of severe drought, were it in the opposite condition vegetation would suffer much more.

The drying up of a spring or of a water course may depend on causes far different from the felling of the forest. The source of a spring may be, and often is, far dis

tant. Hydraulic laws will satisfy us of this. Any motion in the crust of the earth, or the accidental filling up of the passages of the water may stop for a time, or even forever a spring of water. These changes are continually taking place, in Florida, and many other parts—dry basins are left all over the country, called dry lime sinks, where pure water once abounded. Immense springs are sometimes choked up, and the water finds another channel, reappearing at another point. The water of the everglades of Florida, probably have washed the mountains of Tennessee and the prairies of Alabama. The water of the Alabama river finds a thousand avenues to the Gulf besides its open channel. Not a tithe of it passes Mobile, that enters it by the thousand veins. We feel satisfied that the forest is somewhat of a barrier to evaporation, but not more so than the growing plants of the cultivated fields. Evaporation and condensation, ever in activity, cause the rain drop to fall and the dew to distill.

Why Farmer "M" lost his Cows.

Mr. Editor:—Some three years since, in passing a neighbor's farm, a most noisome stench saluted my nostrils. A glance served to explain the cause. My neighbor's cow had died, as I supposed, from *hoven*; and, as is usually the case, the carcass had been dragged to a distant part of the farm to be devoured by the dogs and crows, and fill the atmosphere with its unhealthy odor. Neighbor M. being one of those who regarded all improvements upon the old system of farming as downright, dangerous innovations, I thought this would be a fine opportunity of convincing him of his error, and accordingly called upon him as I passed his house. After a little general conversation, I introduced the subject of the dead cow, by enquiring the cause of her death and the mode of treatment that had been pursued for her recovery. As I anticipated, she had indulged too freely in the use of rank young clover, and that the old and cruel method of stabbing had been tried to relieve her; with what success, the putrefying carcass in the distant fence corner too plainly told. Upon asking whether no other remedies had been tried, he assured me he *knew* of none. I then mentioned to him the efficacy of the *tarred-straw band*, referring to several cases, in every one of which it had proven successful. This had the desired effect.—He immediately became anxious to know all about the method of using it; which information I freely gave him, at the same time informing him that I had learned this simple, but almost certain cure, from a source which I knew he held in utter contempt—an agricultural periodical.—After pondering for a moment upon the information he had received, he looked me earnestly in the face, and with an expression of seriousness, almost ludicrous, remarked, "Neighbor B, I have been acting the part of a very foolish man in under-rating the value of papers devoted to farming. The fine cow lying out yonder is not the first I have lost. Last summer I lost two others with the same disease; and all for the want of that knowledge which I might have acquired at the expense of a dollar or two yearly. We learn wisdom from experience, and I will for the future strive to repair the error into which I have fallen by taking at least one agricultural paper." In this mood of mind I left him, fully satisfied with the result of my errand. M. is now a regular subscriber to several agricultural papers; and I am happy to say has lost no more cows since that time, from hoven. If you conceive this simple statement worth presenting to your readers, it is at your service; and if it should appear, and neighbor M. chance to see it, I hope he will pardon the use I have made of the incident. A. L. B.

Remarks.—Our correspondent did not entirely fulfil his mission to his neighbor, although he did well. The occasion was susceptible of still further improvement. Every portion of that dead cow's carcass might have been turned to valuable account, instead of merely furnishing a feast for troublesome dogs and crows, and poisoning the surrounding atmosphere. All well informed farmers know that animal substances possess much greater fertilizing properties than vegetable. The action of animal manures is immediate.—The flesh of animals not only decays rapidly itself, but imparts the principle to other organic substances with which it is mixed. The blood possesses fertilizing powers in an equal degree. The skin, hair, hoofs, horns and bones might all have been converted into profitable use. and at less expense and trouble than draging the carcass to such a distance.—All that was necessary was to cover it sufficiently to prevent the escape of the volatile matter when decay commenced, and the result would have been a fine mass of fertilizing compost, which would have served to replace, in some degree, the loss of the animal.—*Farm Journal.*

Indian Corn.

There will never be a time, probably, when Indian corn will not be contemplated in the light of an important staple by the American agriculturist. For a great variety of uses, it is certainly unsurpassed in the catalogue of grains, and in point of productiveness it compares favorably with most grains. Yet there are a great many who consider its cultivation as a matter involving much uncertainty and risk. They complain of the early frosts, which cut off the young plants; of the drought, which coerces or averts the development of the grain, and of the later frosts, which sometimes, though rarely, destroys it. All crops are liable to accidents, and corn can by no means claim an exemption. Yet that it is more liable to suffer and be destroyed by untoward events than other crops of similar value, is what no one, perhaps, who candidly contemplates the subject, will pretend to assert. If the early frost withers the tender blades, it never destroys the roots; a few warm days reclothes the field in its pristine verdure, and the real injury is, at most, but nominal. The drought or its effects, none can prevent, though the latter may be very essentially mitigated by adopting a judicious course of cultivation. Formerly the old Indian method of elevating a high conical hill around the roots, was in vogue; but this has been found to be an error. The more of these hills there are on an acre, the greater, of course, will be found the extent of surface exposed to the sun and winds, and the greater the exposure, the greater too must necessarily be the evaporation in a dry time. It was also deemed essential, in order to obviate the effect of drought, to allow the weeds to grow and cover the soil to keep out the sun, and thus preserve the soil perfectly moist and cool. Now experience has demonstrated, and the most indifferent observation will convince any one that the more vegetation there is on an acre the greater will be the the drought on its moisture. If, in a severe drought, you pull up a handful of weeds from a mass, the foliage of which completely shuts out the sun from the soil, you will find the roots bring up no moist dirt; while the soil on which no weeds have grown, though in the immediate vicinity of the former, and exposed to the unmitigated heat of the sun, will be damp. In working corn lands, we should endeavor to keep the surface clean and light. Fine, well pulverized earth is a non-conductor, and consequently the oftener we

pass through our fields with the harrow or cultivator, in dry weather, the better will it be for the crop. A brick, fresh from the mould, if placed in the yard and covered with a stratum of perfectly dry sand, will retain its moisture five times as long as one struck from the same clay and at the same time, if exposed openly by its side. No hills should be made around Indian corn. Plant so as to pass both ways through the field, i. e., longitudinally and transversely, and do the work with the cultivator and hoes. The few weeds that remain after the latter has passed, are easily eradicated with the hoe or hand, and all the rain that falls will be carried to the roots instead of being thrown from them into the middle of the space between the rows. If you plant a kernel of Indian corn in rich soil, and suffer it to grow without hilling, it will take as strong a hold, and maintain itself as firmly against winds, as one that is hilled, and more so But if, after it has run up to the height of three or four feet, you bring up three inches of dirt around the foot stalk, the lateral roots, which are its stays and braces, will stop growing, and a new emission of laterals will be induced from the section covered by the fresh soil. The old stalk will also be blanched by the privation of air, become crisp and brittle, like asparagus grown under leaves, and easily break. The same will take place as often as fresh dirt is drawn up; and the energies of the system exhausted by sending forth roots from which it in return can derive but comparaiively slight support.—*New England Farmer.*

Road Making.

Good roads, I put down among the cardinal virtues. Honest men are always in favor of them, and so are politicians as a general thing. Why then dont we have good roads? That is the question. It is because the science and practice of road making is not generally understood, and because there is no efficient, thorough and uniform system adopted throughout the country. A lazy and dishonest practice obtains of shirking as much as possible when working on the road: as a general thing, men do not do more than half a day's work in a day. That little is more than half thrown away by want of skill in the overseer. Muck and turf are frequently deposited in the road, in a very rough state, so that holes and chasms immediately follow.

I understand that in some of the old countries a different practice prevails.—The surface soil is removed, and a layer of stones is deposited, then smaller stones are applied, and still smaller, well packed and perhaps some of the surface stones broken,—the whole covered with gravel, the coarser the better. A few years ago, when it happened to be my turn to serve the public as path master, a part of the labor of the district was not expended till the rains of autumn were setting in, and one of the road commissioners of the town advised that it was now too late to work with profit. I thought otherwise; selected the worst part of the district, called out men and teams, and commenced depositing cobble stones in the road, putting the largest at the bottom and smoothing off with the smaller ones; these were covered with gravel, making the whole deposit about a foot in thickness. For more than ten years the road so administered to, has required no repair, and is hard and dry at the worst season of the year. A neighbor gave the stones and was glad to get rid of them. We have expended labor enough in our district to fix all our roads in this manner twice over, but a great part of it has been thrown away. I will sum up briefly:

1st. Make it a point to do a good day's work on the road, and as many of them as you are taxed, and more if necessary.

2d. A good foundation is indispensable. Get stones, or at least good coarse gravel, even though you have to draw a great distance and pay a good price. There is generally a supply of stones on somebody's farm in every district, or at least a gravel hill, which it is or ought to be lawful to seize for the public use.

3d. Finish thoroughly, whatever is begun. Leave the road smooth and well rounded up in the centre, so that the water can run off.

4th. Watch a new road closely and fill up the holes before they get large, so that it will settle evenly.

5th. Dont patch up for the present when it can be avoided, but do conclusively every year as much as possible.

6th. Make it a Christian duty to strive for good roads, and many a weary and worn traveler will bless you on his dying bed.

Before closing, I would recommend the scraper for smoothing off roads in the spring. It is a very useful instrument.—*Rural New Yorker.*

The two greatest agricultural improvements of the day, are under-draining and sub-soil plowing.

Address.

BY WILLIAM S. KING, MANTON, R. I.

(Continued from page 98.)

A great bug-bear to plain farmers, and a lion in the path of agricultural advancement, is science; and this constitutes a third in our list of prejudices.

You have allowed yourselves to indulge the idea that a scientific farmer is one who goes to a field with his mouth crammed full of hard words, and his arms filled with gallipots from the drug store.—The manure for an acre of land, you have made him declare, he can carry in one vest pocket, and thereupon you retort, that the resultant crop he will be able to carry home in the other. Common opinion has stuffed his coat pocket with books, and his hat with pamphlets, and even from his bosom peep papers, covered with calculations and estimates. Thus armed by the bookseller and the apothecary, you push him forth to the hay field. Ask him when ought hay to be cut,—in the flower or in the seed,—and he answers from "Vol. 6, page 281." Speak of the depth of plowing or the quantity of manure to the acre, and you cause him to squat on the wall, till he can consult the tables of contents of a score of treatises, and read out the recorded experience of a hundred theorizers.

This man of print and pepper boxes is not entirely the creature of your own creation; there are originals of this portrait, —men of mere pretensions to scientific acquirements, the more supercillious and presuming in proportion to their shallowness. These are the chaps who have created in the minds of farmers a prejudice against that science, of which they pretend to be teachers. These pretenders these *mere* book-farmers build theories, and then try to twist and squeeze facts to accord with them.

A genius of this class once wandered into a country village. A thriving storekeeper of the place had lately added to his articles for sale, hides and leather; and as an appropriate *sign*, had drawn a calf's tail through a small knot-hole, leaving the bushy end hanging down. As he came once in a while to admire the effect of his own ingenuity, he observed a man draped in black, with white neckerchief and gold spectacles, intently observing, for hour after hour, this pendant tail.

"My friend," said he at length, "do you want to buy hides?"

"No," abruptly answered the observer,

without removing his eyes from the calf's caudal appendage.

"Are you a drover?"

"No, I am a philosopher, and I am trying to satisfy my reason, how *the calf got through that knot-hole.*"

These are the men who have brought ridicule upon science, instead of concentrating it upon themselves.

Now science is simply knowledge reduced to a system; and this system, which has worked wonders in every other department of industry, we commend to you. Of water, science has built bridges thousands of miles long, and upon this race-course of nations she has placed and propels steamers and sailing craft, plying with the regularity and despatch of a ferry boat. The sun has been instructed as a portrait painter. The lightning is harnessed as an express man. And of late, we learn that the air we breathe, has been made to labor in the cylinders of Ericsson, with a force superior to steam. These are the triumphs of science,—of systematic knowledge.

Justice calls science to her aid. They decend into the tomb. The dead are made to speak, and tell the terrible tale of their violent death.

With strained eye, science searches the heavens, to manifest the wondrous works of God. Twinkling plainly before her upraised glass, is a star millions of miles distant. With patient calculation, she traces the route traversed by this eye of heaven, back to its far-off source; and tells her astonished hearers that this light, which has traveled 20,000 miles in a second, has been 3541 years in coming from its distant home. Bessel, a Prussian has discovered the distance of a fixed star, to be sixty-three billions of miles from us.—*Sixty-three billions of miles!* The mind of man refuses to conceive of such distance; he can but express it in figures.

Science, with reverent tread, approaches to the very council chamber of the Creator; and, from off the outspread plan of the universe, reads his yet untold decrees. She tells of the day,—and names the very day and the hour and the fractions of a minute,—when "the face of the sun shall be darkened, and the moon shall refuse her light. She tells of the coming of the fiery comet. Nay, more. She dares to say that the completeness of the Divine plan of the universe, requires that a planet should exist, where none has been found; and hard upon the heels of the daring assertion, comes the announcement of the discovery of the required planet.

Science thus bridges oceans, conquers time and space, and wrenches their secrets from the heavens; but farmers yet are found, who say that it cannot aid them to grow beans,—that is not *practical!*

The washer-woman laughs at science, as she stands over her wash-tub and *uses soap.* The smith smiles at the pretensions of scientific men, when he tires a wheel. But how many years of dabbling in grease and ashes would have enabled the woman to make a recipe for soap! And how many tons of iron would be heated and cooled before the blacksmith, of his own observation, would fathom the mystery of expansion and contraction!

Science is villified and ridiculed because she has not already explained all secrets of nature; and because, when inquired of by the farmer, she often errs.—Allow to her as many years in the field of agriculture, as she has enjoyed,—yes, enjoyed and improved,—in other fields, and the results which she will present,—not sell, but present,—to you, will be quite as astonishing and quite as incalculable in value. But cramped within confined limits, hooted at when she appears abroad, how is it possible that science can do herself justice.

The practical farmers,—fondly so styling themselves,—have had in possession "the cattle on a thousand hills," and the thousand hills themselves, for over five thousand years; but are now unable to tell how many lbs. of hay go to a pound of beef. And in this vast assemblage we could not agree with unanimity upon such questions as these; whether is it better to plant large potatoes or small?—to top corn, or cut it up at the butt?—to strip off suckers or not?—to cut grass in the flower or in the seed?

These are plain questions, which one would suppose might be answered by a thirteen-year-old boy, of ordinary observation; but five thousand years of feeding and killing and cutting up, and of planting and reaping and gathering into garners, have not enabled the farmer to decide these and other mooted points. Is it, then, an enaction on the part of science, to demand "a clear field and no favor" for ten or twenty years, at least? Is it unreasonable?

Few valuable inventions or improvements have resulted from guess-work, or from following in the cider-mill track of an established routine. So the farmer may vainly hope to improve upon the knowledge of his predecessors, if he studies only to follow in their footsteps; and the success that is the result of chance, and not of calculation, is a poor dependance for him, who relies for his daily bread upon the bounteous yield of the soil. A certain system is necessary to obtain facts; and by these facts we must alter and amend our system. Most good farmers, even among those most loud-mouthed in decrying science, are, *in the main*, scientific farmers. The great operations of their farms are conducted upon a system, born of observation and experience. Thus they know, by a series of observations, that it is not well to sow wheat upon newly manured land; but in preference plant corn there, and follow it up with a wheat crop. But this will not carry this system into *the details* of farm-management, and learn the why and the wherefores,—the causes and effects,—by the same system, watchful and long-continued, that taught them the prominent facts. Science unlocks these mysteries, shows the reasons of things and tells to the inquiring farmer, that an over-supply of ammonia will force his wheat, when sown on land dressed with green manure, into a rank and unnatural luxuriance;—that the stalk will be weak in texture and unable to support the head of grain; and that the wheat will lodge.

Precisely thus, medical men, before the day of Hervey, were acquainted with the fact, that a bandage tightly encompassing the arm or leg, would cause the veins to stand out like whip-cords; but until science enabled Hervey to proclaim his theory of the circulation of the blood, no reason could be given for the phenomenon. Ere Jenner lived, it was known that milk-maids were liable to an eruptive form of disease, caught of the cows; it was noticed, too, that those thus attacked were not subject to the small-pox; but science,—a series of observations, directed by an enlightened reason,—proved to him alone, from these generally known facts, that vaccination was a perfect shield from that dreadful scourge. Thus farmers know the leading facts, which are not only important, but indispensible to successful cultivation; but it is the scientific farmer, only, who makes of these, a key to unlock the inner chamber of the temple of knowledge; he it is, who uses every fact as a stepping stone to reach a higher.

(To be continued.)

In Indiana there are 800 miles of rail road in operation, 1500 miles of plank road, and five hundred and fifty miles of navigable canals.

The Drought---Botany.

For the Farmer and Planter.

Messrs. Editors:—It is still dry, the earth is dry, the clouds are dry, and our brain is dry from sympathy with all around us, and above us—we are in relation with aridity, which reigns triumphant o'er the drooping land. Our pen is dry, and should our subject be dry, it is in harmony with the present dry arrangement of meteoric workings—dry! dry!! dry!!! is echoed and re-echoed—hill answereth hill in dry husky murmurs,

The beast lie panting on the dusty ground.
Birds, and reptiles, sunny hills have left,
Dryness, and heat, triumphant reigns around,
Of health sustaining water, all bereft.

What a coment on the vanity, pride and arrogance of the boasting animal, man, when the fact looms up in stern reality, that the rain drop holds his destiny, and teaches him the importance of his nature. We are in an age of unrest, real, unmistakeable unrest. The world of matter sufficeth not the craving appetite. In the midst of progress, the age is blurred and blotted by fogs and mysticisms. The mountebank is in the ascendant. Senators, Generals, Governors, and even the pulpit, have joined the throng of wondermongers, and worshipers at the shrine of cabalistic spiritualism. Where is proud reason? when such violence is being done to common sense and common decency, by the trashy, clap-trap, wonder-feeding, tomfoolery, as set forth in a letter from one in *high place*, telling us, yes, telling the sons of Carolina, that the spirit her beloved Calhoun was a bell-ringer and guitar-player. Fie! fie! Governor, the *Foxes* have got you. They have found "a hole in your hat," and the hair growing out of it. And then the General's story of the old negro being "sixteen times fuddled" in spirit-world, makes us crimson all over, and brings us back to the nursery tales of Sindbad the sailor, and Baron Munchausen. If we have intruded on the columns of the Farmer and Planter, by this digression from natural science, we plead in extenuation, that we farmers claim the right to express our thoughts through our own press, and we go a little further, that we farmers should do some of the world's thinking, to while away the ennui of drought, particularly in this "wonderful fast age." So now to our task of telling all we know about wheat:

There are two desiderata to the agriculturist, or grower of wheat. The first is from whence it came, or where it grows spontaneously or is native, and the second is, the true nature of the grain in its natural or uncultivated state. From our researches, we come to the conclusion that wheat is originally a native of the hilly country of the east. In support of this view we find Sir Joseph Banks received a small paper of seeds, marked Hill Wheat. These seeds were scarcely larger than many of the seeds of wild grasses, but perfectly resembling grains of cultivated wheat. This seed was sown and produced wheat, common size, and of the spring kind. An increase in the size of the seed being the principal change produced by culture. From what we have learned of the nature and habits of wheat, we conclude it was, and is now, a wild grass of the hill-country of the east—the seeds rendered larger and the plant rendered more hardy by cultivation, and every attendant influence brought to bear upon it by the industrial energies and skill of man. Wheat is, in natural order, graminea; genus, triticum, with two species and many varieties. Now in common culture one is called smooth or polled wheat; the other, cone, rough or bearded wheat. Triticum, the generic name of wheat is satisfactorily derived from the latin word tritum, ground or rubbed, thus indicating the manner the seed is made into flour for bread. In the linnean system it belongs to the class triandria and order digynia. Generic character, calix common receptacle zigzag toothed, elongated into a spike; glume transverse containing about three or more flowers, and consisting of two ovate bluntish, concave valves. Corolla of two nearly equal valves, the size of the calix; the outermost, tumid, obtuse, with a point or awn; the inner flat. Nectary of two acute scales, gibbous at the base; Stamens: filaments three capillary, anthers pendulous, oblong, cloven at each end; pistillum, germen superior turbinate; styles two, capillary reflexed; stigmas feathery; pericarp none. The corrolla embracing the seed till it is full grown and ripe, then letting it go. Seed solitary ovate-oblong, blunt at each end, convex at the outer side, marked with a longitudinal furrow on the inner. Essential character: calix of two valves, solitary, transverse, many flowered on a zigzag toothed reseptacle. The only technical distinction between the triticum and secale (rye), is the greater number of flowrets in triticum, which are only two in secale. This notice will save any description of secale or rye. We know little of the species and shall say nothing about it. We expect to bring down on our head the malediction of one half our brothers of the clod, for the many *jaw-breakers*, but no matter, our head is hard, as every bump has been pummelled into double thickness, so we are invulnerrble and shall keep our temper, and hope for a good drizzling rain of three days continuance which will cheer up

Abbeville.

June 19th, '53.

For the Farmer and Planter.

Fruit Trees.

Messrs. Editors:—I am so well pleased with J. Van Buren's communication on the culture of fruit at the South. If he had said one or two things more on the subject, it would have excluded the necessity of this epistle. I hope when he reads this, he will write again, as he has hit the nail on the head in every sentence. I speak not from theory, but from actual experience. Last fall, noticing my apple trees, I saw the bark of every tree, except those having bushy spreading tops, had turned black, cracking open, entirely on the South-west side; at the same time the bark on the North-east side was in a healthy condition. Let those who have apple orchards go and examine for themselves, and I shall have the whole south witnesses to this fact. True there is exceptions to this rule, in hollows and where they are shaded by other trees.—Now had I have known this thing before setting out my orchard it would have been worth fifty dollars to me. Set your trees from North-east to South-west, fifteen feet apart, one tree will then shade another to the outside tree. Next set your trees fifty or sixty feet apart the other way. By this means you can plow and cultivate your orchard, having space one way to work without injury to your trees. Next, Mr. Van Buren says tie boards around the trunks of the trees. I do not differ with him, but propose, as I think, a better plan, having tried both. In the spring, peal the bark from the poplar, chesnut, hickory or sourwood, and put it around the tree you wish to protect from from the sun. I have bark from all the above named, around trees in my apple orchard at this time. This is an interesting subject when taking into consideration the amount of apples brought from the North, and sold in the southern States. I am certain it is a good plan to scrape away the dirt from the apple tree about the month of November, to some two inches deep, for two or three feet around from the tree, to let the freezes go about the roots, to destroy any insects that may be housed there, replacing the earth

about the 15th of February, composed of rotten wood, leaves or decaying corn cobs, from the horse lot, or where hogs have been fed. No doubt decaying cotton seed would be equal to any other manure.

Mr. Farmer and Planter, if you think this worth publishing, do so, if not commit it to the flames—don't fear any unpleasant feelings; I have never written for any paper, whatever, and should you give this notoriety, please correct, if necessary. JOHN CLARK.

Gainesville, Ga., July, 1853.

P. S.—After examining the foregoing, I think where I mention peeling the bark of trees, I should have been more explicit. Select trees, say chesnut, about the size of the trunk of the apple tree you intend putting it around, chop through the bark all around near the root, and again as high up as you wish to take it off, then split the bark down the tree from the upper ring to the lower, then commence peeling by separating the bark from the wood with a sharp ended stick, so as to take the bark off in a whole piece. This should be done when the sap is fully up, say the 15th of May. J. C.

For the Farmer and Planter.

Botany for the Farmer.

The next plant we shall notice, is Oats. In botany, oats are in the genus avena (so called from aveo, to covet or desire, cattle being fond of it); natural order graminæ; class, triandria digynia. Generic character, calix; glume generally many-flowered, two valved, loosely collecting the flowers; valves lanceolate, acute; ventricose, loose, large, awnless. Carolla, two valved, lower valve harder than the calix, the size of the calix, roundish, ventricose, accumenate at both ends, emitting from the back an awn spirally twisted, reflex; nectary, two leaved, leaflets lanceolate, gebbous at the base. Stamens: filaments three, capillary; anthers oblong, forked; pistilum germ, obtuse; styles two; reflex hairy; stigmas simple. Pericarp none; corrolla, mostly firmly closed, grows to the seed and does not gape. Seed, one, slender, oblong, accuminate at both ends, marked with a longitudinal furrow. Essential character: calix two valved. many flowered; awn from the back of the corolla, jointed, twisted.

The genus avena, or oats grass, is represented in almost every part of the world. Known as oats grass. Botanists have never been able satisfactorily to pronounce on the native place of our cultivated oats. There are several species of the genus in the east. The species in common cultivation is, avena sativa. Of this species, there are four varieties: white, black, red, or brown, and the blue oat. Specific character, panicled; calixes two seeded; seeds very smooth, one awned—annual; culm, or straw, upwards of two feet high (dependant on strength of soil and quantity of moisture); panicle various in the different varieties, but always loose and pendulous. The two glumes, or chaffs of the calix are marked with lines, pointed at the end, longer than the flower, and unequal. There are usually two flowers, and seed in each calix; they are alternate, conical: the smaller one is awnless, the larger puts forth a strong two-colored, bent awn from the middle of the back.—Besides the above we have the naked oat, avena nuda. The seed of this species is so easy to shed that we shall not describe it, as this will always be a drawback to its cultivation. The oat is a gross feeder, and grows on every variety of soil; requies and bears more rain than any other grain crop, and requires to be sown as early as possible in our climate, and, we might say, that early sown oats are the best in all countries.

The oat crop like all others requires good preparation when sown. It is a mistake to suppose that a good oat crop will result from slovenly and shallow preparation. the land should be plowed deep and clean, and the seed put in when in good order. If too wet, land and crop are both injured. The black oat may be sown in December, and both black and white should be put in the ground in January; in early sowing a little more seed is necessary, as some plants on wet ground, or that are near the surface, will often be frozen out, or winter killed. Manures will tell as well on this crop as on any other. We think the large black oat the best variety for our country, as the culm, or stalk, generally grows high enough to cut on most lands. The seed is heavier, and the whole plant we think hardier than any other.

As a hay crop we regard the oat as one of the best of the gramina, for this purpose. It should be cut, before the stalks get hard—let it lie just long enough to get dry, and then be put away in lofts up from the ground, when it will be a good and nutritious hay for mules and horses. We will close, and beg pardon of our brethren for the hard, crooked names, given to plants in descriptive botany.

June, 1853. ABBEVILLE.

In 1771 the Elbe was frozen to the bottom.

Botany for the Farmer.

For the Farmer and Planter.

MESSRS. EDITORS:—It is still dry, and having no pleasure, or much business in the field we again risk the ire of some of our brethren of the plow, for more hard names, which we are forced to use in giving a botanical description of barley.. Jussier placed barley in the natural order, graminæ; genus hordeum; class triandria; order digynia. Generic character: common receptacle elongated into a spike, jointed, brittle, compressed; calix: glumes lateral, three together, each of two narrow, pointed valves, containing one sessile flower. Corolla, of two valves; the lower one swelling, angular, ovate, pointed longer than the calyx, ending in a long straight awn, the inner valve lanceolate, flat, smallest. Stamens: filaments three, capillary, shorter than the corolla; anthers oblong. Pistilum, germen, turbinate, somewhat ovate; styles two; villose reflexed; stigmas feathery. Pericarp none, except the permanent corolla, falling off with and containing the seed. Seed oblong, swelling, angular, pointed at each end, above marked with a longitudinal furrow. Essential character: common receptacle toothed and excavated. Calyx lateral, ternate, two valved, single flowered.

Observations.—In some of the species of hordeum, all the three flowers are perfect in all their parts and fertile; in others the lateral ones are males, the central one one only being hermaphrodite and fertile. There are three species of hordeum in cultivation, but we rather suppose two of them are only varieties of hordeum vulgare, and a fourth species called hordeum zeocritum, which we have never seen. Hordeum vulgare: flowers all perfect, awned, two of the rows more erect than the rest. This is the common cultivated barley, and said by botanist to be found in a wild or native state in Sicily and parts of Russia. It may be termed annual. The flowers and seeds are disposed indistinctly in several rows, with very long compressed rough awns. There is also a variety with black seed, biennial in its habits. This we have never seen. There are several species of grassy hordeum both in Europe and America. The genus elymus (lime grass, or rye grass) is nearly alied to hordeum. Barley is a gross feeder, the richer the land, the better. We can scarcely limit its productiveness; if the land is stiff or clayey and enriched by stimulating manure, over one hundred bushels may be calculated, as it ripens so

early in our climate, it is rarely ever affected by drought, insects or rust, it is well calculated for a help after a season like the present. ABBEVILLE.

June 25th, 1853.

Cultivation of Cotton.

SAVANNAH, BARNWELL DISTRICT, July the 8th, 1853.

MESSRS. EDITORS:—As your subscriber O. H. M., of Noxubee county, Mississippi, thinks your subscribers in South Carolina are not as communicative as they ought to be to your work, I, for one, will try after this to do my part as far as I am able, and my experience for 25 years in planting will go. I would have thought it would have been presuming too much for a planter of South Carolina to think he could instruct a planter of the west, for it is a well known fact that good land makes good planters generally. I never saw a planter in my life that was not a good one that had good land to plant. But if any information that I can give Mr. O. H. M. will be of any advantage to him, the following is at your service.

In the first place, Messrs. Editors, I prepare my cotton land by tracking it off with a small bull tongue plow three and-a-half feet, whether the land has been laying out or planted the previous year in corn.—I then take other bull tongue plows and run two furrows on the track furrow, as close as I can get to the track furrow. I then tkae out the middles with a good whole sweeper plough, by running two furrows which completes the work finely, and at the same time puts more dirt up to the bed you made with the bull tongue plows, and by taking out the middles with the whole sweeper before you plant, you have a nice, fine, clean alley, and a very pretty, nice, loose bed to plant in. I then open the holes about two inches deep with the point of the hoes, and put as much seed as I think will give me a good stand, and cover with the foot, about one inch deep But in land prepared as above I think there is no risk in putting from six to eight seed in the hole, for a few seed covered lightly will come up as well as twice as many. Then as soon as the cotton is up and large enough to bear the plow, I put careful hands to plow the cotton with good whole sweeper plows. I run two furrows to the row, and run up close enough to throw dirt to it without cutting the young plant. Then the hoe hands begin to thin out to a stand, by leaving two stalks in a hill. As soon as the hoe hands get through thinning, I come back with the whole sweeper and run three furrows. The first furrow runs up to the cotton and puts dirt to it, and the third furrow takes out the middles.—The hoe hands come then and haul up one side of the bed, and in doing this they haul the dirt over on the side of the bed that they are standing on, as well as the side they haul from. As soon as the hoe hand get through with this work, I put in a good shovel plow, if the half sweep will not throw the dirt up to the cotton, and run two furrows with either of the plows I have named, and the third furrow I run with a whole sweep. The hoe hands then haul up both sides which puts a good bed to the cotton, and it is laid by with that working of the hoe, which will be three plowings, and three workings with the hoe. I will observe that when I flat hoe I do four tasks to the hand, when I haul one side of the bed four tasks, and when I haul both sides of the beds, three tasks to the hand. I planted sea island cotton some 22 years ago, and if I had known then as much about plowing and the whole sweep as I do now, this is the way I should have worked my cotton, for I know the land that I planted and the most of the lands down about the sea-island and main land are high and light, and I know that the whole sweeper plow could work there as well as we work them in Barnwell. It is my opinion, Messrs. Editors, that the day is not distant, when you will see the corn crop cultivated with the whole sweeper, after the corn is up, because planters will and are every day beginning to see the ten-fold advantages from breaking up their corn land during the winter. I have heard lately from some planters that broke up their land the last winter, and notwithstanding the severe drought, their corn has kept its color and grew all the time. I had one field well broke up myself, and it kept green althrough the drought but did not grow much until the rains set in.

I find, Messrs. Editors, I have neglected to state in its proper place the quantity of land I cultivate to the hand. The present year I have 18½ acres to each hoe hand. A BARNWELL PLANTER.

Ploughing by Oxen.

Last year I ineautiously permitted a yearling colt to run with my plow mares;—so many of them this spring proved in foal, that I had not sufficient horse power to flush my corn fields; and I substituted oxen for my breeding mares.

I procured from Sinclair &co., ploughs suitable for a pair of oxen, which they call the Patuxent plough,—I flush to the depth of six inches, and use three horses to a plough;—the work was better done by the ox, than by the horse ploughs, which I attribute to the more uniform and steady gait of the oxen. Oxen have not been used here for the plough,—several of my neighbors came in to see the performance; and they generally concurred that the flushing was the best they had ever seen.

Next to manual labor, horse is the most expensive on a farm, and when horses attain ten years they gradually decline in value; and often in old age, like Roman horses, in aneient days, are turned ont to starve, or killed to make dust of their bones. An ox at ten years of age is worth more for beef, than a steer at four.

The heaviest work on a farm is flushing, spring and summer, I keep fourteen plough horses, by which I work four ploughs, three to a plough, and two for a relief, when a horse falters. I intended to add eight oxen, six for regular work, and two relief; this will add three plows by which my flushing can be accomplished in little more than half the time, and the ground being broke early may be better prepared for the crops. I am now in the habit of using exclusively oxen for the drag-log, the heavy roller, and harrow—to these I never put a horse—and to this I attribute the health and longevity of my horses; I have now several in regular work, more than twenty years old.

I do not recommend the substitution of oxen for horses on a farm—I should never think of using them in the wheat drill, the reaper or the thrasher; nor work them among corn when it had grown large; but I deem them valuable auxillaries.

I have heard objections to oxen as beasts for the plough, on account of their sloth; I think this is mainly owing to the manner in which they are trained, after being subdued to the yoke. They are generally put into the hands of reckless boys, to be driven in carts. who press them beyond proper speed, and when exhausted, they fall into a dull heavy walk, which becomes a habit.

I do not alledge that a plow drawn by two oxen would hold way with one carried by three light-footed hores crossed with English blood—but I hold that a pair of Devon oxen, well broke and well trained, would plow furrow for furrow, with the heavy Conestoga horse, such as I have seen in Pennsylvania and western Virginia.

When horses are put to heavy work, they are fed at every meal with grain.—

Oxen after a hard days work, are generally turned out at night to shift as they can. Oxen at plough should be regularly fed with dry hay, corn-stalk fodder, and a little refuse corn, which all farms afford.

I have before stated, that to flush ground well, required three horses to a plow, and that two oxen are sufficient —by this rule six horses will carry two plows, six oxen three; and any farmer who will try the experiment will find the six oxen will break more ground in a day than the six horses.

I have made this communication under the impression that a more extended use of oxen in agriculture, would be found profitable. On large farms where twelve to fifteen horses are used, the number might be reduced to one-third. The first cost of a horse, his keep and speedy declin, cannot be estimated at less than fifty dollars per annum. An ox after his days of work are past, if suffered to run free on a farm for a year, will bring his first cost. WM. CARMICHAEL.

American Farmer.]

Practical Farming vs. Scientific Farming.

BY J. S. HOUNTONN, M. D.

Some of our leading agricultural journals, I am sorry to see, take much pains to foster and increase the prejudice already existing amongst farmers against the application of chemistry and other natural sciences to the art of cultivating the earth. Whether this arises from ignorance of the real value of scientific knowledge, or a disposition to pander to the ignorance of others for mercenary purposes, I am not always able to discover; I suppose both motives may frequently have some influence.

A late writer in a very respectable and valuable journal, (and one which I cannot suspect of either ignorance or undue avarice,) declares that "practical agriculture will be of more benefit to farmers in general, than thousands of theoretical speeches, or volumes on scientific farming;" and this writer then proposes to give a "chapter or two on *thorough experience.*" In his first chapter, he recommends under-draining, and the liberal use of green crops as manures (chiefly clover), with the application of plaster of paris twice a year.

Now, what is all this, when written and printed, but "book knowledge?" And wherein does this "thorough experience" differ from scientific instruction? Did the experience of the world for more than a thousand years, originate the practice of underdraining? Did experience explain the reason why under-draining was so useful? I think we may safely answer these questions in the negative. Nothing short of the most profound principles of chemistry and natural philosophy can explain why it is, when under drains are freely employed, the land keeps moist and cool, and why it becomes more fertile than before, and better fitted for high farming, and the production of maximum crops.—Experience migh observe these facts, but could never explain them satisfactorily.

Again, of green crops as a means of fertilizing the earth, and the use of plaster of paris the same rules hold good. Experience might easily and naturally show the farmer that a crop of clover turned into the soil seemed to fertilize it; and accident might show to him that plaster of paris was good for clover.

But what a flood of light does the study of chemistry throw upon the subject at once! The chemist without even seeing the field of clover, would be able to suggest to the farmer in advance, that a crop of clover would greatly benefit the soil if turned under with a plow (for the reasons which it is not now my purpose to detail), and would also tell him that plaster of paris would be one of the most useful fertilizing materials he could use for a time, and in a certain proportion to the nature of his soil. And the chemist could tell the farmer what the experience of a hundred men, following each other in direct succession, on the same farm, during the period of a hundred human lives, prolonged to the utmost length, might fail to teach the last man of this long series of uneducated observers—viz: precisely how much plaster to use on a given soil, and *when to stop using it!* The chemist could tell without any experience in growing clover, that it could not be raised on land deficient in lime, potash or soda, and he could also tell, without a trial, that if too much of these substances called *alkalies* were employed that portion of the soil called, by practical men, loam, would disappear, and the land would become barren.

The truth is, that knowledge got by one's own experience, or from the experience of others, is like the "legendary lore" that existed before the art of printing was invented—when all knowledge was communicated "by word of mouth," or painfully inscribed on parchment and handed down from generation in the imperfect and limited form accessible to few. Those who go for "thorough experience," and rail against "book farming," ough to go back to those good old primitive habits of telling the story as it was told to them, directly from mouth to ear, or write it upon sheep skin, but never (oh, never!) pen it. "Experience" to appear in glaring print! It is positively awful to see the old graybeard so hustled about in modern attire!

Experience is a very slow teacher always; and the evidence which it presents to others, depends not so much on reasoning or principle as upon *testimony*—the testimony of individuals, or of an individual. Now testimony is the most imperfect source of knowledge we can have. It is often difficult to decide a case of petty larceny by testimony. You must first prove the honesty and capacity of your witness, before the testimony of experience can be received as reliable. And as much of testimony received from experience is hearsay testimony, it follows that every man must prove much of this evidence received from experience for himself, before he can safely venture to apply it largely in practice.

Men of experience, and not of education, for the reasons just stated, rarely believe anything but what they see. Tell a man who despises science, and clings to experience, any important practical fact based upon well known scientific principles, and he replies, "I don'nt know about that," or "It may be so—I have never seen it tried." You cannot covince him that what you say is reasonable and probable and worthy of trial, because his mind is not prepared to receive the scientific evidence which you can adduce in support of you position. But if you say nothing about science, and tell the man of experience that you have tried the course you advise and found it advisable, he is satisfied that you *say so*, but he has no other proof of the truth of the matter, until he learns for himself by "experience." Such knowledge is "dear bought indeed."

With all the light that science and experience can pour upon the human mind, all that the tongue, and the pen, and press can do to circulate and urge this knowledge upon the attention of mankind, our progress is slow enough towards perfection.

Let no man, therefore, attempt to build higher and stronger the great wall of prejudice which encircles the midds of farmers in reference to science; but rather seek to expose the folly of relying solely upon the teachings of experience and the reports of men who have merely "seen" a process in cultivation performed, but have no knowledge of the principles in-

volved in the operation. Let us have *science proved by experience*; but not experience without science. Let us have *scientific farming made practical*; but not practical farming without science. Thus may science and practice, and good old experience, go hand in hand; but let science lead and then practice and experience may follow in a direct road to their object, and seldom will the steps taken have to be retraced on account of error or mistake.—And when the genius of history, and her mighty agent, the Press, issue the record of these labors to the world, in her myriad transcripts, then may the minds of *cultivated* men receive the truth, as seed sown upon good ground, and great shall be the increase and harvest of knowledge. The old crone, experience, may tell her tale to one dull and uneducated listner, by some kitchen fire; but science and history, by the aid of the press, can address millions at once, and "book knowledge," though it 'hath no tongue, speaks with most miraculous organ." Who is such a Chinaman as to deny these positions?—*N. Y. Agricultor.*

Water, the Grand Constituent and Solvent.

Of organic bodies, whether vegetable or animal, water is a large constituent during life, and a powerful solvent after death. Potatoes, for example, contain 75 per cent., (by weight) and turnips no less than 90 per cent. of water which explains, by the way, the small inclination of turnip-fed cattle and sheep for drink. A beef-steak strongly pressed between blotting paper yields nearly four fifths of its weight of water. Of the human frame (bones included) only about one-fourth is solid matter (chiefly carbon and nitrogen), the rest is water. If a man weighing 10 stone was squeezed flat under a hydraulic press 7½ stones of water would run out, and only 2½ stones of dry residue would remain. A man is, therefore chemically speaking, 45 lbs. of carbon and nitrogen diffused through 5½ pails full of water.—Bezilius inded in recording the fact, justly remarks, that the living organism is to be regarded merely as a mass diffused in water; and Dalton, by a number of experiments tried on his own person, found that of the food with which we daily repair this water fabric, five-sixths are also of water.

The sap of plants is a solution of material matters, saline and organic, in water, which distributes them so rapidly that its upward course through the minute vessels (as observed by lindley in the stipules of the ficus elastica) looks like the rushing of a swift stream. A pail full of water, suitably impregnated with salt, is speedi-snoked up by the root of a growing tree immersed in it; the salts are assimilated as is also a part of the water, the remainder being evaporated by the leaves. Food or provisions may thus be artificially administered to plants; and timber is thus hardened in France, and even stained, whilst living, of divers briliant hues. As for evaporation from foliage, it is so abundant that a sun-flower perspires one and a quarter pails per diem, and a cabbage nearly as much—nay, it appears from valuable experiments published by Mr. Lawes of Rothamsted, that a wheat plant, during the period of its growth (170 days) exhales about 100,000 grains of water, so that, taking the ultimate weight of the mature plant at 100 grains, which is a full estimate, its mean daily perspiration actually exceeds ten times its own weight. At this rate an acre of wheat, (weighing at least two tons at maturity) should exhale, on an average, fully ten tons of water per diem.

Of a plaster of paris statue, weighing 5 lbs., more than 1 lb. is solified water.—Even the iridescent opal is but a mass of flint and water combined in the proportion of nine grains of the earthly ingredient to one of the fluid. Of one acre of clay land, a foot deep, weighing about 1200 tons, at least four hundred tons are water; and even of the great mountain chains with which the globe is ribbed, many millions are water solidified in earth.

Water, indeed, exists to a certain extent and under conditions which escape the notice of cursory observers. When the dyer buys of the drysalter 100 lbs. each of alum, carbonate of soda, and soap, he obtains in exchange for his money, no less than 45 lbs. of water in the first, 46 lbs. in the second, and a variable quantity, sometimes amounting to 37½ lbs., in the third.

Even the transparent air we breathe contains in ordinary weather about five grains of water diffused through each cubic foot of its bulk; and this rarified water no more wets the air, than the solidified water wets the solid material on which it is absorbed.—*Daguerrean Journal.*

Manures---No. 15.

BY PROFESSOR J. J. MAPES.

Green Manures.—The use of green manures has been most extensive in this country, and in localities where markets are distant the system of green manuring may be practiced with profit. The term green manuring is usually applied in this country to the plowing in of standing crops, while in England and elsewhere, this term is used to express the use of either crops plowed in where they grew or elsewhere, and of additions of sea weed, river deposits, drifts &c., &c. We shall for the present confine ourselves to the term as it is used in the United States.

Our readers are well aware that many farmers raise crops of clover, buckwheat, peas, &c., &c., for the purpose of plowing in and thus enriching their lands. Many crops are found to grow well on an old sod turned under, and adhesive soils are rendered much more friable by such treatment.

Light colored soils, and indeed all soils which are short of organic matter, and hence sluggish in the use of their inorganic constituents, are improved by plowing in their crops, and the use of the crops we have named are preferred, because they receive during their growth the larger part of their constituents from the atmosphere.

We have before explained that growing plants received the carbonic acid gas from the atmosphere, robbing this gas of its carbon, and from this source alone nine-tenths of the whole dry weight of the plant is derived. Some plants receive a still larger proportion of their weight from this source, and clover, buckwheat, peas, and many others of that character. It is therefore easy to understand why soils are improved by burrying green crops beneath the surface. All the carbon (charcoal) which the plants have received from the atmosphere during their growth, is added to the soil, and that, too, in the very best form, from its extreme state of division, for all the offices it is called upon to perform. In addition to the carbon, portions of nitrogen and other organic matters are taken from the atmosphere and added to the soil.—The plowed in crops decay slowly, and by their decay leave spaces between the particles of earth, which admit the atmosphere, while the resultant carbon retains new portions of ammonia for the use of growing crops. The best proof of the truth of this rationale is to be found in the fact, that if the process of plowing in crops be continued for a few years, the soil becomes dark colored, from the increased amount of carbon which is taken from the atmosphere and added to the soil.

Nor are the benefits of green manuring confined to the addition of organic con-

stituents, for the organic matters of the surface soil is also materially increased—the roots of growing plants are continually abstracting soda, potash, lime, and other constituents of the subsoil, and leaving these substances after their decay in the upper or surface soil. When land has been properly subsoiled plowed, the after use of green crops as manures have been found doubly beneficial, for then the amount of inorganic constituents added to the upper soil, is much greater than where the subsoil plow has not been used; in well disintegrated subsoils (many of of which are more highly charged with inorganic matters than their surface soils,) the roots passs down freely, and hence are in contact with new surfaces, and must receive whatever the subsoil contains of a soluble character, or of such matters as may be rendered soluble by the action of growing plants. When farmers are located where organic matters may be cheaply procured, then the plowing in of green crops is less profitable than that of using similarly compound substances of less cost. Thus in Essex County, New Jersey, where immense muck deposits, entirely composed of vegetable matters are to be had fo the digging, it is unnecessary to plow under any crop which can be sold or fed to cattle, as the amount of decayed vegetable matter contained in one cord of swamp muck is greater than would result from the decay of many cords of clover. This muck, however, is not in a proper state for use, until subjected to the action of the salt and lime mixture which we have before described.

When old grass lands are to be plowed, we would advise *that time* should be chosen for increasing the ordinary depth of plowing, for then the escape of gases from the sod which will decay rapidly when plowed deeply under, will change the character of all the superincumbent soil—the bottom heat engendered, will materially assist in the conversion of the newly turned soil into loam.

Market gardners are well aware of the value of decaying vegetables when burried deeply beneath the surface—thus cabbage stalks are always burried deeply under egg plants, and old stalks of any vegetable will improve its own species when used as manure. To rot waste vegetables in the compost heap before using them as manures, is to waste much of their value, for if the soil be in fair heart and the waste vegetables are plowed deeply under, all the resultant gases will go to fertilize the growing crops.

After trimming our grape vines last year, we passed the rough cuttings through the straw cutter leaving them in half inch pieces, and then burried them at the roots of grape vines—the effect was greater than we could have anticipated. When cutting down tomato vines, we burried a portion around the roots of a few plants, and these grew with a vigor entirely greater than any others not so manured.

Green sea weed when applied to land plowed in without passing through the compost heap, is found to give better results than when otherwise treated; and garden weeds, if composted with a portion of salt, and then applied to land before the decomposition has proceed far, are more effective than if used after entire decomposition. The addition of salt prevents the regermination of their seeds.

If cabbages or any other succulent vegetable be placed in a cask and covered with water, a fermentation will take place, and the fluid portions from such reservoir are often used for re-invigorating sickly plants in hot and green houses. Before use, however, a small portion of sulphuric acid should be added to fix the ammonia and other volatile gases, or the affluvia will be most unbearable. Such fluid portions may be added to loam and then used as manure, and if the loam be fairly charged with carbonaceous matter, the effect will be lasting to such time at least as will enable all the fertilizing materials to be used by the growing plants.

C. W. Johnston says: "When green vegetable substances are buried in the soil, they first loose their green color, speedily wither, and then putrefaction soon commenses. It is requisite, however, for this purpose, that moisture should be present, and that the temperature of the soil should not be less than 45°. If the atmosphere has access to the vegetable matter, the putrefaction proceeds with more rapidity. but its presence is not essential. Putrefaction cannot, however, proceed if water is absent, and hence it is concluded, that water is decomposed during the process. The smell which proceeds from the gases emitted, varies according to the vegetable substance which is putrefying. Thus, as I before remarked, those which contain gluten, emit ammonia—others, such as the onion, evolve phosphoretted hydrogen. Almost all emit carbonic acid gas and hydrogen gas, which, combined with various vegetable matters, are commonly produced in very copious volumes. When wood putrefies, a portion of oxygen is absorbed from the atmosphere, carbonic acid gas is emitted, and the whole mass is gradually reduced to a dark vegetable mould. This black substance is an excellent fertilizer; plants grow in it with great luxuriance. The soils of some of the famed newly enclosed American lands, owe all their fertility to the abundance of this vegetable mould, which they contain. This substance is obtained from trunks of oak trees; has been examined by M. M. Saussre and Einhop; by distilling it, they obtain from 200 grain, *(Recherches sur la veg.* p. 162.)

	Cubic in.
Carburetted hydrogen	134
Carbonic acid gas	34
	Grains.
Water containing acetate of ammonia	53
Empynumatic oil	10
Charcoal	51
Ashes	8

"By the effects of cultivation, to exposure to the action of the atmosphere, and roots of plants, this mould becomes gradually exhausted in the soil, and the land is of course sensibly impoverished.* On this mould the alkalies act powerfully, almost entirely dissolving it, and hence one great use of soda and potash as fertilizers.

"The term *humus* has been given by some chemists to the very finely divided organic matters which all cultivated soils contain. Woody fibre in a state of decay, (observes Liebig) is the substance called *humus.* The humic acid of chemists is a product of the decomposition of humus by alkalies; it does not exist in the humus of vegetable physiologists. Humus does not nourish plants by being taken up and assimilated in its unaltered state, but by presenting a slow and lasting source of carbonic acid, which is absorbed by the roots, and is the principal nutriment of young plants at a time when, being destitute of leaves, they are unable to extract food from the atmosphere."—*Org. Chem.* p. 46.

The substitution of cheap organic matters from swrmps, &c., for green manurings, is among the most important improvements of the day. Many of our rivers furnish, by Delta-like deposits, immense supplies of organic materials for the use of farmers, while the deposited

*These are the soils from which we are told twenty successive crops of wheat have been obtained. There are some lands in the hundreds in Essex and Kent, and other places, whose luxuriant unfaling produce is hardly credible; alternate crops of wheat and beans have been obtained from them, from time immemorial.

washings of high lands forming extensive meadows, in many places irrigated by the ocean tides, as on the shores of New Jersey, will render the supplies inexhaustible in such neighborhoods. The mode of decomposing these organic matters and rendering them fit for use as fertilizers, are to be found throughout our past numbers, and thousands of acres have been rendered fertile, which were previously considered worthless.—*Working Farmer.*

Smut---Uredo segetum---vs. The little Black Bug.

"Vat you mean! b'gar Monsieur Tonson come again!" My dear fellow don't be alarmed—I am not going to bore you with hard names, or throw smut into your eyes. I do not profess to be a scientific gentleman in spectacles, trying to "study out how that calf got through that hole," nor can I be called a book farmer altogether; while I am still farther from being a disciple of old Father Standstill, who is too wise to be taught. The truth is, I never read any book from wich I did not learn something—nor have I often talked with the most ignorant farmer without finding out something to add to my stock of knowledge. In all questions of husbandry, it should be the aim of every one, to arrive at truth. Whatever may be our predeliction for any theory, we should feel more than willing to give it up, when the weight of argument is against us. Nothing has retarded argieultural progress so much as ignorance. We either denounce every thing coming to us from scientific men as humbug. or we run off wild upon every humbug that opens upon us by Jack o' Lanthorns.

But to our subject—What is the cause of smut?

Those who agree that it is the work of an insect, deny that steeping seed in the various solutions recommended is a preventive. We have, in a former article, given our own experience as well as that of those to the contrary. This harvest I took wheat from a field which had never been in wheat before—I found only four heads of smut in the field—it was soaked in brine before sowing.

"Tull relates that a ship load of wheat was sunk near Bristol in autumn, and afterwards taken up; being unfit for the miller it was sold to the farmers, and sown in different places. At the following harvest all the wheat in England happened to be smutty except the produce of this brined seed. This accident has justified the practice of brining ever since, in most parts of England."

Mr. Somerville mixed some smutted grains with others perfectly healthy, and kept them in a box for two months—they were then rubbed together—the sample divided and one part thoroughly washed—both sown and treated similarly in culture—the plants from the washed seed produced scarcely a single diseased ear, while all the rest were smutted.

Mr. Harrup sowed wheat consisting of half sound and half smutted grains without any soaking—produce two thirds smutted. Similar wheat soaked twolve hours in brine, and rolled in lime, produced on the same soil, same situation, and same season not a single smutted ear.

Similar experiments on a more extensive scale, were tried by Mr. Benom, with like results. Mr. Johnston buried some of the *smut* in a garden pot about an inch below the surface of the soil and poured the water *apon the surface* when he watered the wheat—not a plant escaped infection. Another garden pot in which wheat from the same sample was sown and similarly treated—save that the water was applied *through a saucer in which the pot stood*, produced plants not at all infected. We could quote a long list of experiments since the days of Tull down to the present moment, all going to prove, we think, unquestionably, that there is some virtue in soaking.

M. Du Hamel and Mr. Kirby found upon examining in March. or April, the hose or blade which envelopes the young ear, although not above one sixth of an inch long, the ear was black and distempered. If the observations of these gentlemen be true, it is clear that the disease does not occur after the grains are formed. Mr. Johnston says that the most accurate observations have satisfied him that insects do not produce the smut, but that the diseased grains are an agreeable nidus and the insects always apear after the disease. Minute insects are found upon smutted heads, but similar insects are found upon the roots of all decaying vegetable matter. If smut were the work of a little black bug, and the process as easily discovered as the advocates of that theory represent, it would have been next to an impossibility for it to have escaped so long the keen eye of the entomologists. An amateur bug-hunter would have pounced upon it with such a gusto, that nothing short of a book on the little black bug would have been the consequence. The habits and habitats of insects have been too long studied and too well understood in England to admit of any such ignorance on the subject.

Mr. Lathbury says that this smut, examined under a powerful magnifyer, is found to consist of numerous minute particles, uniform in shape and size, contained in little irregular cells, and that this dust, or seed is the food of a small, shining, *black* insect, the *Dennestes ata* of marsham. Is this the little black bug?—Chemical analysis has proved that this fungus effects an entire decomposition of the vegetable parts of the grain it infects, the saline portions of it remaining unaltered. Parmentier, Cornet, Girot, Chantians, Foureroy and Vanquelin, have all successively analysed it and found the same result. If this be so, it is evident that a smut ball cannot vegetate—cannot reproduce itself—but as in the experiment of Mr. Somerville, when rubbed together with sound grains it infected them and the produce was *smutted wheat.*

We presume that no one will deny that the disease is communicated by the parent seed having been in contact with smut, infected by it, or from the smut having been hauled out among the refuse of the barn on the land. J. H. H. admits this fact. But J. H. H. also says that the egg of the little black bug hatches out in about four weeks. Now if the egg hatches out in four weeks, his blackship must seek some other habitat, or run the gauntlet of spike thrashers, flails and fans—admit that he escapes them all with his life, and deposit him for safe keeping in the bin or the soil—is it not a little remarkable—is it not expecting too much, even of an insect, to suppose that he will reproduce himself every four weeks, or that he will lay quiet until the exact moment the wheat is heading out? Again if the above wheat should be soaked in bluestone solution or brine, and be free from smut—how can this be explained?—The black bug must have been killed in the *grain*, the soaking could not have destroyed the egg deposited in the manure, in the soil, or, in fact, any where else, and it is next to sheer nonsense to say that soaking seed in a solution of blue-stone or brine could prevent an insect from attacking a grain six months after date.—Again, why does the bug not make its appearance on any but *smut* heads, and why are the roots of smutted stalks, "mouldy and rotten invariably. He is certainly a pernicious and "savigorous" insect, if he works both ways at once. It is often as fatal to a cause to prove too much as it is to prove too little.

J. H. H. has certainly allowed his zeal to get the better of his discretion. We

[*See page* 126]

mucus, and not unfrequently tinged with blood. Some days frequently elapse before pain in the stomach is complained of, but during the time the suffering is intolerable, consisting of a sensation of deep distress, which, though referred to the præcordia, or abdomen, the sufferer cannot locate in any particular spot. Pain in the limbs are complained of, and is severally referred to each of the extremities, but is more constantly located in the spine, particularly at the nape of the neck. The pulse, during the forming stage, possesses greater force and volume, with slightly increased action. The bowels will remain obstinately constipated, the powers of nature being incompitent to relieve the condition, so that unless it be done by appropriate remedies, at the end of 6 or 8 days an offensive discharge takes place, quickly followed by dissolution, the symptoms being those which would indicate disorganization of the structure of the intestines. The tongue, during the initiatory stage, is slightly furred, but otherwise not much changed in appearance. This coat disappears soon after the occurrence of vomiting, and becomes clean, of a pale-red or pink color, greatly resembling a piece of raw veal. Next to the fetor mentioned, the change of volume occuring in the tongue may be viewed as the great characteristic of this disease. It rapidly attains inordinate size, completely filling the mouth, and so flabby and soft in its texture as to retain perfectly the impression left by the teeth, when extruded.—Often a number of efforts are necessary before it be can forced out, and then it has a tremulous motion. This condition of the tonge changes with the stage of the disease. When the vomiting has been suspended, and free evacuations from the bowels obtained, it is reduced in volume, the surface is for a time smooth and glazed, soon after becomes dark, cracks open in transverse fissures, is hardened, with an obstinately dry and rough surface. Of all the primary symptoms, vomiting is the last to disappear; it ceases very gradually to annoy the patient, and its continued absence is the most certain indication of convalescence. In no disease is there a greater difference or diversity of symptoms than are usually found in different cases to constitute what may be properly termed the secondary stage of milk sickness.

In some cases the patient is affected with drowsiness, low muttering delirum, nervous tremors, and the whole train of symptoms associated in low typhus fever. When recovery takes place after severe attacks, the convalescence is very slow, and years may elapse before a perfect restoration to health. Indeed, it has been a question with many, whether those once severely attacked ever regain a perfect integrity of constitution. In cases which terminate fatally (of which description is a large majority), a length of time of from 1 to 4 weeks is required, proportionate to the intensity of the primary effects, the propriety of the treatment, and the natural powers of the resistance of the constitution, as they often seem to die from a wearing out, or gradual destruction of cerebral and nervous energy. The cases which occur during the summer months, are most decidedly inflamitory, whilst in the winter there is always observed a disposition to assume a low form. The autumnal cases, in their secondary fever, are liable to assume a remittent aspect, and I have seen them eventuate in a well marked intermittent. When recovery has taken place, the patient retains not the slightest recollection of any thing which occured during the progress of the disease, and this forgetfulness often extends as far back as some days previous to the active development of the disease.

Cause.—The cause of this disease in animal is as yet shrouded in myrtery and uncertainty. No satisfactory account of its nature has yet been given, and it has in turn been supposed to be of vegetable, even mineral, and aerial origin. The limits of its prevalence is not often over a large continuous tract of country, but rather circumscribed, and surrounded by localities never known to produce it. No example is known in which the property of producing the disease has been acquired by any locality which did not previously possess it. The boundaries which were at the first decovery of the country found to separate the infected from healthy districts remain unchanged. The locality which serves to produce the disease, most commonly extends as a vein of variable breadth, traversing the country for a considerable distance. It can be traced in one instance for nearly a hundred miles, running parallel to the course of the Wabash river, in the state of Indiana.

Again—it will be found to occupy an isolated spot, comprised in an area of 100 acres, whilst, for a considerable distance around, it is not produced. Thus having the locality perfectly circumscribed, much labor has been expended in order to discover some production peculiar to the locality. The search has been uniformly unsuccessful in the attainment of its object. The general appearance of these infected districts is somewhat peculiar. I have always observed that the situation of the ground is elevated above that of the surrounding country, occupying what is denominated a ridge, and that the quality of the soil is in general of an inferior description. The growth of timber is not observed to be so luxuriant as in situations otherwise similar, but is scrubby, and stunted in its perfect development, in many instances simulating what in the west is denominated "Barrens." Throughout the entire district in which these localities are interspersed, there is observed an absence of the occurrence of stones scattered over the surface, whilst in the infected tracts they are almost universally present. They are of a small size and darkened aspect externally, breaking with a regular and shining fracture, and, upon analysis, imperfectly made, were found to contain a considerable portion of iron with slight traces of copper. Another more decided and peculiar appearance, which serves to distinguish them from other spots is the breaking forth of numerous feeble springs, furnishing but a trifling supply of water, but not varying in quantity with the change of seasons. In its appearance, it presents the general evidences of a sulphurous and ferruginous contamination.

Experiments made upon the water collected from these springs, or more properly oozes from the soil, with the greatest care by the employment of the most delicate chemical re-agents, failed to indicate the presence of any mineral except iron, sulphur, traces of magnesia, and a quantity of copper barely capable of being demonstrated. A belief being entertained by many that the disease is occasioned by arsenic, or some of its salts, I with much care and patience subjected not only the water, but likewise the earth, from these distaicts to the most rigid examination, and by no test was I furnished with the slightest evidence of its presence.

An intelligent medical friend expressed to me his belief that it was produced by the inhalation of some noxious gases generated during the night; in proof, he stated that he had observed cattle which were regularly housed each evening, escaped its attacks, and that when suffered to remain at large, they were frequently seized with the disease. It is difficult to form this belief of the nature of the cause, as we can hardly conceive the particular action of any combination of circumstances, capable of giving rise to such an emination

only at night, ceasing to act during the day. The most popular belief is in favor of a vegetable origin. The advocates of this method of production having failed to designate the plant which they supposeed occasions it have endeavored to sustain their views by supposing that the poison exists in some shrub or tree, which is eaten by the cattle, but confess their inability to designate any such peculiar growth confined to these localities. If certain fields which are known to affect cattle fed upon them, be suffered to grow in grass, and the hay produced be given to them for their continual food, no disease results, which is a strong circumstance, unless it be urged that the active poisonous principle is destroyed by the desiccation. Again it has frequently appeared with its greatest virulence when the ground has been for weeks previously covered with snow.

Butter and cheese, manufactured from the milk drawn from an infected cow, are supposed to be the most concentrated forms of this poison. They possess no distinguishing appearance, odour, or taste, from the healthy article. A very minute quantity of either will suffice to develope the disease in man. The cream, ordinarily sufficient to be added to the coffee drunk at a single meal, is said to have induced an attack. The butter or cheese eaten at one repast, has frequently been known to prove effective. The property is not contained in the elements of the milk exclusively, but distributed through the whole of them, being possessed by the buttermilk as well as by the whey. Beef, in the quantity of a very few ounces, will produce the disease, and, it is generally believed, in a more violent and fatal form than when it is produced by milk, or any of its preparations.

In the course of my observations I had an opportunity to experiment with a cow suffering in but a slight degree from the cause. She was affected with tremors when unusually exercised, exhibited a red and suffused eye, with frequent twitches of portions of the muscular system. She was kept confined without an opportunity to exercise, and was fed upon ordinary food. At the end of 8 days, the milk drawn from her possessed as violent poisonous properties as at the time of her incarceration, Her confinement was continued for a week longer, at the end of which period, the milk taken from her was found in an entirely healthy condition, and the eyes were restored to their natural apearance. In this instance it will be seen that the property is suddenly destroyed rather than gradually dissipated.

My trials with the poisoned flesh were, for the most part, made upon dogs, which I confined, and often watched the effect of the poison at regular intervals. In the space of 48 hours from the commencement of the administration of either the butter, cheese, or flesh, from poisoned animals, I have observed unequivocal appearance of their peculiar action. In a few hours a thist greater than natural is created; the appetite remains unimpaired until the expiration of the fourth or fifth day, or just before the fatal symptoms, when the animal will refuse drinks, and the most inviting descriptions of food.

Vomiting does not, as in man, always precede death, but the bowels are constipated throughout, except that, in a single instance I observed copious alvine discharges largely mixed with blood. One ounce of butter or cheese, or 6 ounces of beef, either raw or boiled, administered 3 times a day, will certainly prove fatal within 6 days, and often earlier. In these cases all exertions and exercise must be prevented, or death will occur much sooner, even as early as the third day. When an animal has been subjected to its influence for only a short time, and is induced to fatigue itself, or is driven a distance at full speed, he suddenly stops and falls, and the severity and duration of the convulsion or spasm is in proportion to the intensity of the action of the poison. Often he will appear to entirely recover from the first attack, but to be repeated upon the renewal of the exercise to a sufficient degree.

There is, however, one animal which, from some peculiarity of organization, is rendered proof against the pernicious effects of this otherwise poweful agent. I allude to the hog. Most industriously did I feed a troublesome sow running at large, administering, daily, 5 or 6 pounds of infected beef. This was persevered in for more than a fortnight, and under the *treatment* she fattened, when I was compelled to desist from the great quantity necessary to supply her voracious appetite, without enjoying the satisfaction to perceive one muscular twitch as an evidence that it produced the slightest effect. When I last saw her she enjoyed apparent exeellent health, and was the mother of a numerous offspring.

From all the experiments I have made, and the reasoning used, I can arrive at no conclusion, so far as relates to the nature of the ultimate cause in man, to whom it can only be communicated through the medium of an animal, and that a capability of production can be acquired only by the animals of the circumscribed localities. An intelligent medical friend, alike distinguished as a statesman, Dr. John W. Davis, of Indiana, in a late letter to me, expressed a belief that milk is never a cause of the disease. He merely states his belief of the fact, without the evidences or observations which have led him to the denial of a proposition heretofore viewed as settled beyond dispute. My own experience enables me to say that I have seen a peculiar affection, which I feel assured could have been no other than the milk sickness, in a city remote from any of its local causes, attacking every individual who partook of a certain cheese which had been purchased from a wagon arriving from an infected district. In this instance the well marked symptoms, confined to those only who partook of this cheese, appearing nearly at the same time time, with no occurrence of new causes all together afford strong evidences of the nature of the origin.

There is a murderous practice now carried on in certain districts, in which the inhabitants will not themselves consume the butter and cheese manufactured; but, with little solicitude for the lives or health of others, they send it in large quantities, to be sold in the cities of the West, particularly Louisville, Kentucky, and St. Louis, Missouri. Of the truth of this I am well apprised by actual observation, and I am as certain that it has often caused death in those cities when the medical attendants viewd it as some aromalous form of disease, not suspecting the means by which poison had been conveyed among them. Physicians of the latter city having been questioned particularly upon this subject, have mentioned to me a singular and often fatal disease which appeared in certain families, the cases occurring simultaneous, and all traces of it disappearing suddenly, and which I cannot doubt were the result of poisoned butter or cheese. This recklessness of human life it should be our endeavor to prevent, and the heartless wretches who practise it should be brought to suffer a punishment commensurate with the enormity of their crime.

From the wide extent of the country in which it is carried on, we will readily percieve the difficulties to be encountered in the effort to put a stop to the practice. This being the case, our next proper aim should be to investigate the cause, and establish a more proper plan of treatment by which it may be robbed of its terrors, and the present large proportionate mortality diminished.

Nature and treatment of the Disease.—Much diversity of opinion exists among medical men in regard to the essential nature and most proper mode of treating this fatal disease, with which hundreds of persons throughout the West and Southwest annually perish.

Owing to the want of success which has so uniformly attended the practice of their physicans, many of the inhabitants depend entirely on the domestic remedies. It is in that country emphatically one of the *opprobi i meeicum.*

"The primary operation of the poisoin," says Dr. Graff, "seems to be on the brain and nervous system, and this is indicated by the cerebral irritation which so often preceds, and always accompanies an attack, as well as by autopsic appearance. Without an exception, in the animals poisoned, I always found the brain and meninges phlogosed with a greater or less degree of inflamatory action."

Dr. Graff relates the following circumstances connected with the occurrence of the disease, which will tend to show its mode of development and characteristics. The entire family of a Mr. Frazier, moving westward purchased a quantity of fresh beef in Indiana, of which every member of the company partook heartily, daily

advise him to put on a better pair of spectacles, and not to halloo before he gets out of the woods.

Ever yours, truly,

BROOMSEDGE.

Big Branch, July 1.

P. S.—No rain in 10 weeks, save one light shower—corn lost, cotton blooming from the ground, potatoes not planted, gardens burnt up—*subsoiling* don't tell this year—oats none, wheat tolerable.

B.

Milk Sickness.

This name, together with "Tremble," has been applied to a peculiar and most malignant disease occurring in some localities of the Western United States, and affecting certain kinds of farm stock, and persons who make use of the meat or dairy products of infected cattle. Bishop Hennipin, a French Mishionary, who ascended the western waters early in the last century, mentions the existence of this singular disease affecting animals. Although the cause and precise nature of so frightful a malady are still enveloped in great obscurity, and the treatment is far from being so generally successful as could be desired, it may be interesting to be acquainted with some facts connected with its existence. Dr. George B. Graff, a highly intelligent physician of Edgar county, Illinois, has a communication upon the subject in the *American Journal of the Medical Sciences* (April, 1841), from which we draw the following details:—

The milk sickness is a disease peculiar to the United States, occurring seldom, if ever, to the eastward of the Aleghany mountains. It is in a greater or less degree met with in all the Western States, as far south as Mississippi, and extends north to the boundary. The states of Indiana and Illinois are most subject to its occurrence, whilst its existence in the border states is comparatively rare. Among the early settlers it committed dreadful ravages, and in the formation of our Western settlements, its prevalence often served as a cause to disband a community and compel the inhabitants to seek a location which enjoyed immunity from its occurrence. Many of the otherwise most desirable portions of that country remained long exempted from settlement, and even now the inhabitants of these localities, have, as a condition of their residence, entirely to abstain from the use of milk, its preparations, and the flesh of their cattle.

Its occurrence or prevailence is confined to no season or description of weather, existing in a like degree in the heat of summer or cold of winter, and with like virulence and frequency during a dry or wet season. An opinion is entertained by some, that it is more frequently met with in the spring and fall months, whilst others have expressed a belief of its more common occurrence during the heat of summer. However this may be, we know of no season that it does not occur.

The animals in which it has been observed are the beef-cattle, horses, sheep, and goats, which seem to acquire it with their food or drink.

We will first speak of the *symptoms* manifested in cattle affected with it, as it is only through them that we have yet found the disease communicated to man. They may be affected to such a degree as that their flesh or milk may produce the disease, and yet they themselves manifest no unhealthy symptoms whatever. This latent conditon of the disease may be discovered by subjecting the suspected animal to a violent degree of exercise, when, according to the intensity of the existing cause, it will be seized with tremors, spasms, convulsions, or even death. This is a precaution practised by butchers in these countries always before slaughtering an animal in anywise suspected of the poisonous contamination. An ordinary degree of exertion will not develope these phenomena unless it produce the symptoms usually preceding a fatal termination. When, for instance, a cow is sufficiently deeply affected nothing peculiar is observed untill immediately preceeding the outbreak of the fatal syptoms.—She is then observed to walk about, without any apparent object in view; all food is refused, and there is evidence of impaired vision. The eye is first of a fiery appearance, increasing to a deepened red color, until the animal is discovered to stagger and fall, when, if she rises, the trembling of the whole muscular system will prevent the maintenance of that position. The animal usually dies after repeated convulsions, never lingering beyond a few hours. Often it falls suddenly, as if it received a blow from a heavy body on the head, and death is produced in a few minutes.

From the tremulous motion imparted to the muscles, the affection has received the common name of the "Trembles" in cattle. A case which was characterized by the great violence of its symptoms, I had an opportunity of examining shortly after death. The brain I found suffused with a large quantity of fluid blood, which, from the amount contained within the cranium, must have made a great pressure on every part.

In man the symptoms differ from these, and are varied. The length of time found to elapse from the reception of the cause to the appearance of the disease, is dependant on a multiplicity of circumstances, as the age, sex, or condition of the patient, and violence of the poison. It may be developed early as the third, or deferred untill the tenth day. As a premonitory symptom, a peculiar and indescribable fetor from the lungs is the most prominent; and so universally have I found it present and to precede the disease, that in almost every instance where I have been brought in proximity to a person predisposed or attacked, have I been able to foretell its approach, and pronounce on the character of the disease. This fetor can no more be mistaken by a person accustomed to it, than that which is so universally attendant on variola; and it may in fact be safely stated to be pathognomonic of the forming and early stage of milk sickness. This halitus from the lungs, which I have never found entirely wanting even some days previous to an attack, increases in intensity until the disease is fully developed, when it gradually disappears with the specific symptoms, and at the termination of four or five days cannot be detected. A person laboring under the peculiar affluvia from the air passages, in many cases complains of no illness, and appears entirely unconsious of his situation, unless advised of it by his friends and attendants. His appetite may be, and usually is, destroyed; and after the lapse of a few days he is taken down with pain and excessive irritability of the stomach, obstinate constipation of the bowels, a cessation of all biliary secretion, general febrile action, sometimes an intense burning sensation in the epigastric region, with early and obstinate coldness of the extremities.—Often the symptoms are observed to differ widely from these. Besides the peculiar smell emitted, there is a premonition of the attack; for some days previous to its development, the patient experience a restlessness and uneasiness which we cannot describe, with a dread of some impending calamity, confusion of ideas, and other indications of irritability of the brain and nervous system. Vomiting announces the onset of an attack. This continues at intervals for many days, the matter thrown off the stomach consisting of the fluids swallowed, mixed with a glairy

[*See page* 124.]

until the fourth day, when they arrived in the Doctor's neighborhood. On this evening they all retired apparently in their usual health, but during the night he was summoned to attend a female with an attack of milk sickness. Upon a careful examination he found the peculiar smell present on every member of the family, and, on inquiry, ascertained about the beef, and the locality in which it was purchased, "which," he says, "satisfied him that they were doomed. Before the next morning every member of that company of six was attacked in a violent manner, and only one of the number recovered."

The Legislatures of several Western States have offered rewards for the discovery of the origin of the milk sickness, in order to lead to its prevention and cure. The reward offered in Kentucky is $1000. A creeping vine has been of late years generally believed to be the occasion of the disease, but this has not been so well established as to enable the person who made the supposed discovery to claim the reward.

The Farmer and Planter.

PENDLETON, S. C.

Vol. IV., No. 8. : : : August, 1853.

The State Fair of Georgia.

We have received, through an Extra of the Southern Cultivator, the Proceedings of the Executive Committee of the "Southern Central Agricultural Society" of the State of Georgia, held at Augusta, Georgia, December 13, 14, 15 and 16, 1852, with the *Premium List* for the Eighth Annual Fair to be held in Augusta, Georgia, on the 17th, 18th, 19th and 20th of October, 1853. The premium list embraces all that can reasonably be asked. Commencing with the products of the plantation and farm, liberal premiums are offered under the following heads: Domestic Animals of every description, (except dogs and goats.) Poultry, Pigeons, Bees, Pork, Bacon and Beef. Under the head of Home Department, we have products of the Dairy, &c. &c. Household Department; Southern Domestic Manufactures, Silk, Needle and Fancy Work. Southern Manufactures other than domestic embrace a good list. The Orchard and Nursery; Apples, Pears, Peaches, &c.; Fruit Trees and Hedge Plants. Floriculture, with its "Amateure List;" Horticulture; Reclaiming Land, Fine Arts and Plowing Match bring up the rear under this head. Next we have the Workshop, Laboratory, &c. "Mechanical Premiums," embracing Southern Farming Implements, Machinery, Manufactures in wood, iron and leather. Chemical Manufactures; Oils, Cements, Minerals, &c. Clothing, &c. &c.

"The Society have offered premiums to the amount of five thousand dollars, embracing nearly every thing valuable in Agricultural and Mechanical Industry, Art, Science and Taste. The Premium List will be furnished, by application, postage paid, to the Secretary, or the Cultivator office or Soil of the South."

We will endeavor to give, in our next, the Regulations of the Fair.

Milk Sick.

We desire to call the especial attention of our readers to an article in our present number under the above head, for we assure them we believe it to be a matter of much more vital importance to many of them than they seem to be aware of. In a recent excursion into our mountains and in the neighborhood of the infected districts, we have been put into the possession of astounding facts that lead to the belief that hundreds of deaths are annually produced in the different States, and no doubt many in our own, from the fatal effects of "Milk Sick" butter, cheese and even of beef, without the cause ever being suspected, when the case occurs out of the infected districts.

We therefore consider it a duty we owe to our friends in the villages, towns and cities below us to caution them to be on their guard in purchasing, especially butter and cheese, from the milk sick districts of the mountains. So much danger may not be apprehended from the use of beef, but we are induced to believe that a quiet animal affected with the disease in a latent state, may be driven or conveyed on railroad to market without having any of the symptoms developed. We were recently informed of the death from this disease, a year or two since, of two or three animals, at a friend's house, below Pendleton village, that had been driven from North Carolina, above us, and on their way to market. It seems that an overheat, from whatever cause, will bring out the disease, if it lurks in the system; but if not much fatigued or overheated, the disease *might not* appear in driving the animal to Hamburg, Columbia or Charleston, for it is not known certainly what length of time it may remain in the system, if not called out by some superinducing cause.

Most persons living in the "Milk Sick regions" raise cattle, for in such sections the range is generally good, and although many of them, we understand, use no milk or butter in any way, in their own families, except, perhaps, buttermilk, and except from cows kept up; yet *some* of them (but few, we would hope, for humanity's sake,) are in the habit of making both butter and cheese for market, which is sold to unprincipled traffickers of the country, who send it to our villages and market towns for sale, when, at the same time, they could not be induced for any consideration to swallow an ounce of it. An instance occurred, as we are informed, in our own village, where a man offered some fine looking butter for sale, at 12½ cent., we think, when one of our merchants said to him. "I will furnish bread, and if you will eat of the butter, which you may safely do if it is not from cows affected with milk sick, as you state, I will give you 15 cents per pound for the keg." Would not any honest man conclude that on refusing to eat of his butter, this fellow would have retired into some back yard, and there hung himself? Not so, however; he shouldered his keg, put it into his wagon, and cracked his whip for Augusta. Another instance: We were informed by a young man, that he had recently known of an individual, whose name he gave us, leaving one of the worst milk sick sections on the North Carolina side of the mountains, with a quantity of butter for our friends and neighbors of Greenville. He would have written to some acquaintance at Greenville, apprising them of the fact, but considered it too late, as the mail would not reach that place from his office under a week after he heard of it. If we enquired, we do not recollect the exact time at which this butter was taken to Greenville, but think it was some time in June past, and hence we have some reason to believe the cause of the disease in cattle had not made its appearance before it (the butter) was made; if so, our friends have escaped what we have much feared for them, the consequences of its consumption. The cause of the disease whatever it may be, usually manifests itself, as we were informed, in the month of June, but earlier in a dry than wet season, and continues till hard frost.

From a friend, Col. Sloan, who resides a part of his time in the mountains, and who has taken much pains in investigating the cause and effects of this dreadful malady, we have, by request, received the following brief observations:

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Milk Sick.—From frequent visits to the regions in North and South Carolina, where the milk sick prevails, I have been able, by observation and enquiry, to collect the following facts in relation to this wonderful disease.

Locality.—Deep, rich and heavily timbered coves, near the base of the mountains on both sides. From the position of these coves the sun exerts but little influence over them

Season in which the Disease Prevails—From the latter part of the summer *(a)* until the first freeze in winter. In dry weather more and wet less prevalent.

If the cows be kept from the cove until the dew evaporates, the disease will not be contracted. *(b)*

The calf may be killed by sucking its mother whilst she herself may show no symptoms of the disease.

The poison may remain some time in the system, and the animal, to all appearance, be in a healthy condition, until heated by by exercise, when the disease immediately exhibits itself, producing great physical prostration.

The carcass of the diseased animal will kill dogs that eat of it, whilst it only intoxicates hogs, from which they speedily recover. *(c)*

The poison unites with the cream and butter, the buttermilk being entirely exempt from it. Several persons may eat of the same butter or milk infected, and only a portion receive the poison, from which it is inferred that the poison is concentrated, and not diffused throughout the mass.

The cleaning and cultivation of the infected cove has generally eradicated the poison. *(d.)*

Many persons die of this disease, and those who appear to have recovered, for years after have a return of the symptoms, when becoming overheated or taking cold.

Symptoms.—Burning and nausea at the stomach, fever, weakness and pains in the joints.

Remedy.—Honey and brandy, pills, and active cathartics.

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NOTE.—(*a*) Col S. fixes the time of the appearance of the disease at a later date than was given by any one of our informants, the latest of which was in July.

(*b*) We enquired whether after the occurrence of a shower in the course of the day, if a cow should eat of the wet grass or herbage, the disease would be contracted. We were answered in the affirmative. This Col. S. denies.

(*c*) We were told that hogs were not killed by the disease, nor are deer and sheep at all liable to it.

(*d*) Not invariably, as we were informed. We were told that oats cut with the dew on and given to an ox in the course of the last summer had produced death; and that fodder taken with the dew on, cured and kept twelve months had been known to kill a horse. Some of our acquaintance living in the coves save no fodder.

THE following letter from Col. WM. MCNEELY, of Fountain Inn P. O., Greenville District, was received too late for our last (July) number. It shews that our friends in that quarter were in a "dry box," as well as ourselves, at that time, and so continued with us up to the 17th of July, when we had about half a season, the first in ten weeks, except light showers. On the 19th we had a good season, followed by rain on the 20th and 21st, but we are certain too late for much of our forward upland corn. Late planting will, with continued seasons, make *tolerable* crops.

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FOUNTAIN INN, S. C., June 28, 1853.

MESSRS. EDITORS:—I would write you an article about the dry weather, but I suppose you know all about it. We are literally parching up in all this section of country. With the exception of a few partial showers, we have been seven weeks, last Sunday, without rain. The oats crop is nearly an entire failure. The early corn is already nearly ruined—the later corn small and sickly, and unless we get rain soon and plentiful, the corn crop will be an entire failure. But we have harvested and secured an excellent crop of wheat. I should have said that cotton looks very well, and stands the drought admirably.

Yours, &c., WM. MCNEELY.

MESSRS. EDITORS:—Notwithstanding the long drought, we in Laurens (according to my judgment) will make corn enough yet to serve the district.

I have been an observer of the seasons for a long time, and never saw it fail yet, when the seasons set in good by the 4th July, as was the case with us, and continue good through July, but that there was a pretty good crop of corn made. Having had pretty good rains for the last ten days, and now, to-day, a bountiful season, we almost need an introduction to our little corn. The stalks will be short, but well loaded, and more especially where the land was well broken up in the winter, and cultivated according to book farming, when it was light, and omitting the same, when it was wrong. The right way often lies between the two extremes. Never was our low ground corn any better. Corn will be much better than we anticipated.

I hope you will be well compensated for your laudable undertaking in the way of enlightening not only the farmers of the South, but of, perhaps, many other sections of our wide-spread country. I hope your subscription will be doubled for 1854. Although you, like ourselves, have complained a good deal. I would advise you to hold on; perhaps the seasons for you, like ourselves, may change for your benefit. Your reward, by exercising a great degree of patience, may, like our small corn, become very flattering, if not very large. It is not common for a good individual to fail in a good cause, like yours.

All professions give credit to an individual that undertakes, both with his means and ability, to benefit the public at large, and more especially when they apply themselves as you have done. You have sought information from all quarters, and given information to all in a special manner. The time will come, and is not far distant, when the bare name of SEABORN & GILMAN will be a popular toast with the friends and advocates of improved husbandry, and of all other editors of like papers.

To make our farming interests complete, we should have a State chemist to analyze our soil. This would, in some degree, answer the purpose of a captain at sea in time of a storm. It is true, the farmers' storm is not altogether so hasty, but the necessity of a proper and correct guide is equally essential. Our Legislature has lavished money for railroads and colleges, and I am surprised at nothing more than that they do not give the farmers, the back-bone of all, a State chemist, out of their own money, as well as giving statesmen large sums for discharging their duty.

With much respect I remain D——
Laurens District, July 16, 1853.

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REMARKS.—Friend D. has our thanks for his good will and kind regard for our interests. Although we have "complained" of inadequate compensation for services which have been as faithfully rendered as we were capable, under discouraging circumstances, of doing, yet we do think we have claims to some credit for a good degree of patience and perseverance in working our way up to now near the close of our 4th volume; and yet, in hopes of a "good time coming," we shall shortly commence repairing our tools for a new crop in 1854, trusting the drought will not always continue to blast our hopes, but that copious and refreshing showers of new subscribers may fall upon our parched ground, and, like our friend's small stalks, produce large and well filled ears. If we can receive but a *tythe* of the support that several agricultural papers of other States receive, we promise to complain no more, but instead, to give our subscribers a better paper than we have heretofore, with our limited means, been able to do.

For the Farmer and Planter.

Encouraging.

Brother farmers:—Our prospects are blighted—the bread to be earned by the "sweat of our brow" is now withheld—a condition of things over which we have no control—hope fails us for this season. The question now is, what is to be done to ameliorate prospective want and ease off the wide spread scarcity? We must gird up our loins to the task—the inventive genius of our race must be brought to play in all its varied forms—redoubled energies must work out the problem of supply, and depend on that almighty being, who holds our destinies, to bless our efforts. Economy, stern, rigid economy, is one of the first great efforts. Every avenue to waste must be scrupulously closed, nothing should be fed away to stock where they can be sustained by pasturage—every foot of spare ground should be prepared and seeded down in early grain. Wheat comes to maturity in time to supply our mules and horses with strong and wholesome food. Barley on strong or well manured lands will yield abundance of timely food. We once sowed this grain under a similar state as the present, on which we worked a crop.—mules and Horses looked well, and worked well on this food. Our genius, if brougt to bear with proper application, can work out many plans to keep up the machinery of existence, and even prevent a vast amount of suffering and want. Up then, brother farmers, to the task, show yourselves equal to the work before you. Animated by hope, put your shoulders to the wheel, firmly depending on the majesty of the unverse to bless you with success.

We are of the saxon race and true to our blood. We mourn not for yesterday, the past to us has no being, to-morrow, the future, is what we look to. The stern reality of an extreme short crop is a fact not depending on the future. It is in the past, and beyond human efforts to remedy. Then surely it is wisdom's part to look to the future, and strain every nerve to avert the consequences. This should occupy our time, and not waste it away in useless grumbling and worthless inaction. Good and evil are the terms of our existence.—The very constitution of every thing in nature, on this globe, giving exercise to every faculty of our minds, bringing into requisition the energies of our natures in applicative activity. Now is the time for the agriculturist to display his genius, his knowledge, and experience, in promulgating through the press, ways and means of producing subsistence. We feel confident this can be done. We have an ardent climate, but it is often generous, our winters are short and sometimes mild, and short crops are sometimes followed by almost prodigal profusion. Then let us away with fears of starvation, and harness for the work. Sow something—sow everything—above all, sow plenty; take care of every thing that will sustain life, human or bestial, and all will be well—better times ahead, should ever be the farmer's motto. ABBEVILLE.